AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

25. (Currently amended) A method of processing an image, comprising the steps of:

automatically determining window regions in the image without user assistance by performing a first-pass processing of the image in a selected direction, the first-pass processing comprising the steps of:

determining a first segment tag for a first line segment on a first line parallel to a first axis;

writing a first identifier into a first memory location and assigning said first identifier to said first line segment;

determining a second segment tag for a second line segment on a second line parallel and proximate to said first line wherein said second line segment overlaps a position of said first line segment along said first axis;

if said first segment tag equals said second segment tag, writing said first identifier to a second memory location;

if said first segment tag does not equal said second segment tag, writing a second identifier into a second memory location and assigning said second identifier to said second line segment;

reading a first memory location to determine a first memory location content;

pointing to a further memory location corresponding to said first memory location content;

if said first memory location content does not point to said first memory location, reading a further memory location content of said further memory location;

continuing to point to succeeding memory locations until a memory location content points to its own memory location and designating said memory location as a base identifier; ~~and~~

writing said base identifier to said first memory location; and

storing a graphical representation of the image in a page storage buffer; and

performing a second-pass processing of the stored graphical representation of the image based on ~~results~~ the written identifiers of the first-pass processing.

26. (Original) The method of processing an image of claim 25, further comprising the step of determining a location of a third line segment by identifying said third line segment on one of said first line and said second line, as contiguous with one of the group of said first line segment and said second line segment extending a lesser distance in a first direction along said first axis such that said third line segment overlaps a position of the other of said group of said first line segment and said second line segment along said first axis.

27. (Original) The method of processing an image of claim 25, wherein said first line segment and said second line segment are contiguous.

28. (Original) The method of processing an image of claim 25, wherein said first identifier is stored in a first side of a ping pong memory and said second identifier is stored in a second side of a ping pong memory.

29. (Original) The method of processing an image of claim 25, wherein all line segments on said first line and all line segments on said second line are processed before processing line segments on a different line.

30. (Currently amended) An apparatus for processing an image, comprising:

a memory adapted to store at least one of the group of a first identifier of a first line segment on a first line and a second identifier of a second line segment on a second line and storing the image in a page storage buffer portion of the memory; and

a processor coupled to said memory and adapted to <u>automatically determine</u> <u>window regions in the image without user assistance by</u>, in a first-pass processing <u>while the image is being received</u>, <u>forming and frequently</u> <u>updating an identifier equivalence table by comparing</u> ~~compare~~ said first identifier to said second identifier, ~~determine~~ <u>determining</u> a first segment tag for said first line segment, ~~determine~~ <u>determining</u> that said first line segment is eligible for a base identifier search if said first identifier does not equal said second identifier and ~~conduct~~ <u>conducting</u> a base identifier search for said first line segment<u>, the processor also adapted to store</u> <u>received portions of the image in a page storage buffer portion of the</u> <u>memory thereby generating a stored graphical representation of the image</u>, and further adapted to perform a second-pass processing based on <u>the</u> <u>stored graphical representation of the image and</u> ~~results~~ <u>determinations</u> <u>and searches</u> of the first-pass processing;

wherein said first line and said second line are parallel to a first axis and said first line segment overlaps said second line segment.

31. (Original) The apparatus for processing an image of claim 30, wherein said base identifier search comprises the steps of:

reading a first memory location of said memory to determine a first memory location content;

pointing to a further memory location of said memory, corresponding to said first memory location content;

if said first memory location content does not point to said first memory location, read a further memory location content of said further memory location;

continuing to point to succeeding memory locations of said memory until a memory location content points to its own memory location and designating said memory location as a base identifier; and

writing said base identifier to said first memory location.

32. (Original) The apparatus for processing an image of claim 30, wherein a first scan line of a page of said image is said first line and a last scan line of said

page of said image is said second line and all remaining scan lines of said page of said image are selectively, alternatively designated as said first line and said second line during processing.

33. (Original) The apparatus for processing an image of claim 30, wherein said first line segment and said second line segment are contiguous.

34. (Original) The apparatus of claim 30, further comprising an input device coupled to said processor to enable said processor to determine said first segment tag.

35. (Previously presented) The apparatus of claim 34, wherein said input device is a scanner.

36. (Currently amended) A method for processing an image, the method comprising the steps of:

automatically determining window regions in the image without user assistance by performing a first-pass processing of the image in a selected direction, the first-pass processing comprising the steps of:

determining a pixel tag corresponding to a pixel content type of a pixel of a first row;

determining a pixel identifier based on said pixel tag and pixel identifiers of neighboring pixels in said first row and in a neighboring second row;

forming line segments of neighboring pixels of said first row having common pixel identifiers; and

reviewing line segments of said second row and said first row to associate line segments of said second row neighboring line segments of said first row and having common pixel tags; and

storing a graphical representation of the image in a page storage buffer; and

performing a second-pass processing of the stored graphical representation of the image based on results identifiers and associations of the first-pass

processing.

37. (Previously presented) The method of claim 36, further comprising the step of, in the first-pass processing, assigning a line segment identifier to each of said line segments, wherein said line segment identifier corresponds to said pixel identifiers of said pixels forming each of said line segment.

38. (Previously presented) The method of claim 37, further comprising the step of, in the first-pass processing, storing said line segment identifiers for each of said line segments in said first row and said second row in a line segment memory.

39. (Previously presented) The method of claim 36, further comprising the step of, in the first-pass processing, forming an identifier equivalence table to store said associations of said line segments of said second row neighboring line segments of said first row and having common pixel tags.

40. (Previously presented) The method of claim 39, further comprising the step of, in the first-pass processing, performing a base identifier search to update said identifier equivalence table and associate line segments of at least a third row, the base identifier search being performed selectively during an inter-scanline delay time between each scan line, or during alternate scan lines.

41. (Currently amended) The method of claim 40, further comprising the step of, in following the first-pass processing and preceding the second-pass processing, processing said identifier equivalence table to assign window labels during an interdocument delay period, wherein each window label is associated with an area of said image having pixels of a common content type.

42. (New) The method of processing an image of claim 25, further including performing an interdocument delay processing during an interdocument delay period following the first-pass processing and preceding the second-pass processing, the interdocument delay processing comprising the steps of:

    reducing each of the memory location contents to a respective base identifier; and

producing a window retagging table for use in the second-pass processing, wherein the second-pass processing of the stored graphical representation of the image is based on the written identifiers of the first-pass processing and the produced window retagging table.

43. (New) The apparatus for processing an image of claim 30, the processor further adapted to, in an interdocument delay processing during an interdocument delay period following the first-pass processing and preceding the second-pass processing, reduce each of a plurality of memory location contents to a respective base identifier, and produce a window retagging table for use in the second-pass processing, wherein the second-pass processing of the stored graphical representation of the image is based on the determinations and searches of the first-pass processing and the produced window retagging table.